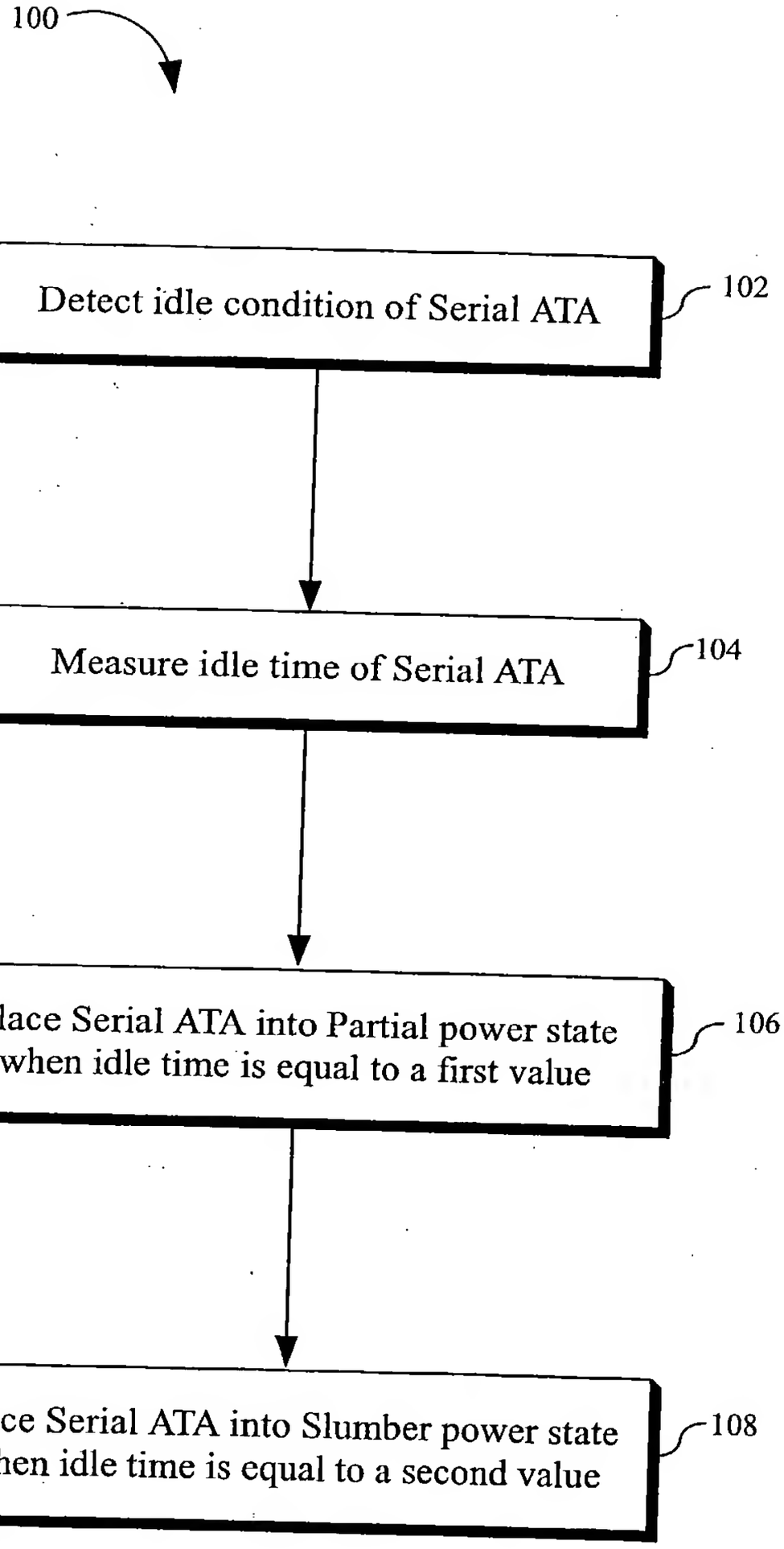
100
Detect idle condition of Serial ATA
102
Measure idle time of Serial ATA
104
Place Serial ATA into Partial power state when idle time is equal to a first value
106
Place Serial ATA into Slumber power state when idle time is equal to a second value
108

FIG. 1

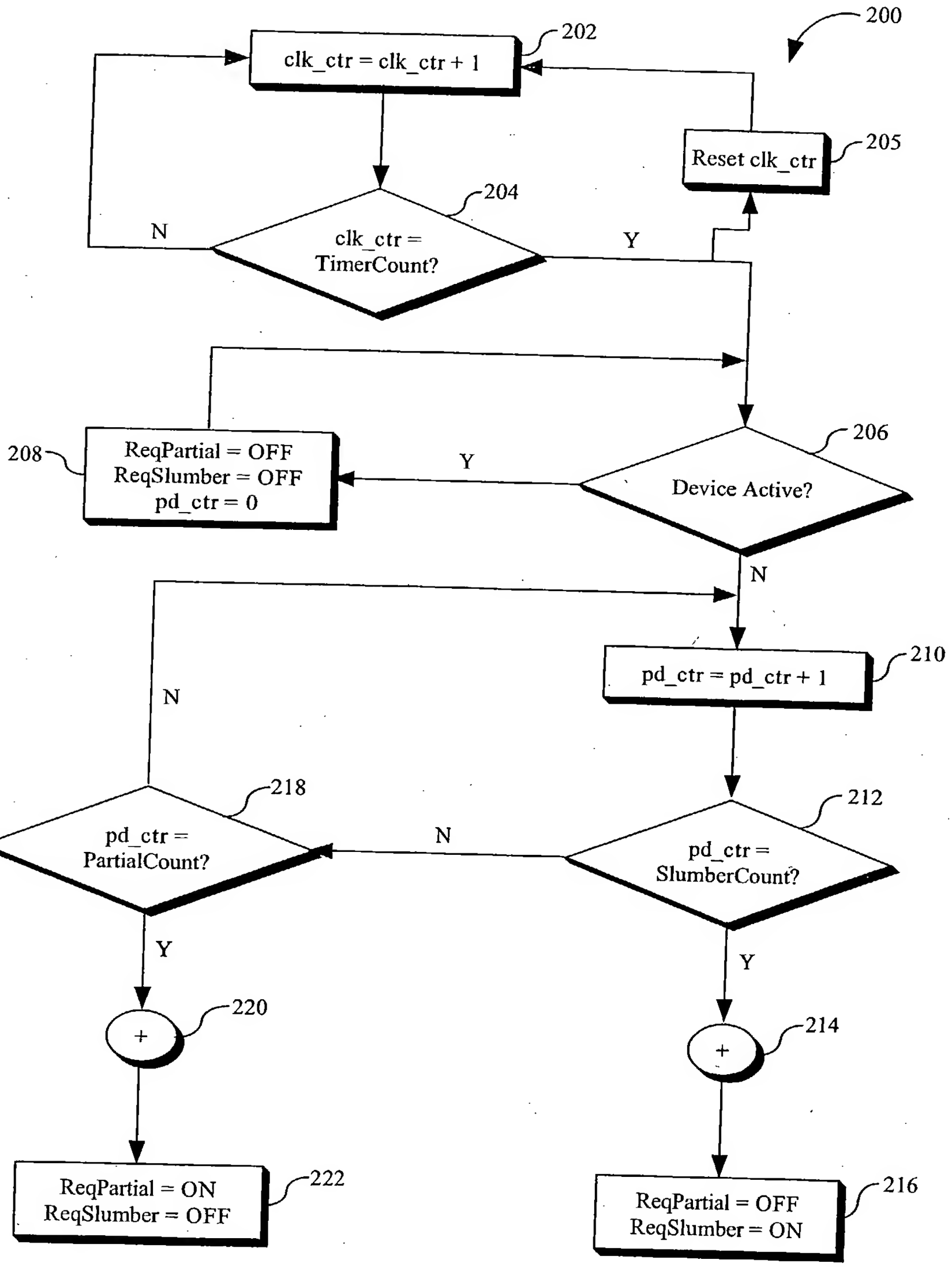
200
clk_ctr = clk_ctr + 1
202
Reset clk_ctr
205
clk_ctr = TimerCount?
204
N
Y
ReqPartial = OFF
ReqSlumber = OFF
pd_ctr = 0
208
Device Active?
206
Y
N
pd_ctr = pd_ctr + 1
210
pd_ctr = PartialCount?
218
pd_ctr = SlumberCount?
212
N
Y
Y
+
220
+
214
ReqPartial = ON
ReqSlumber = OFF
222
ReqPartial = OFF
ReqSlumber = ON
216

FIG. 2

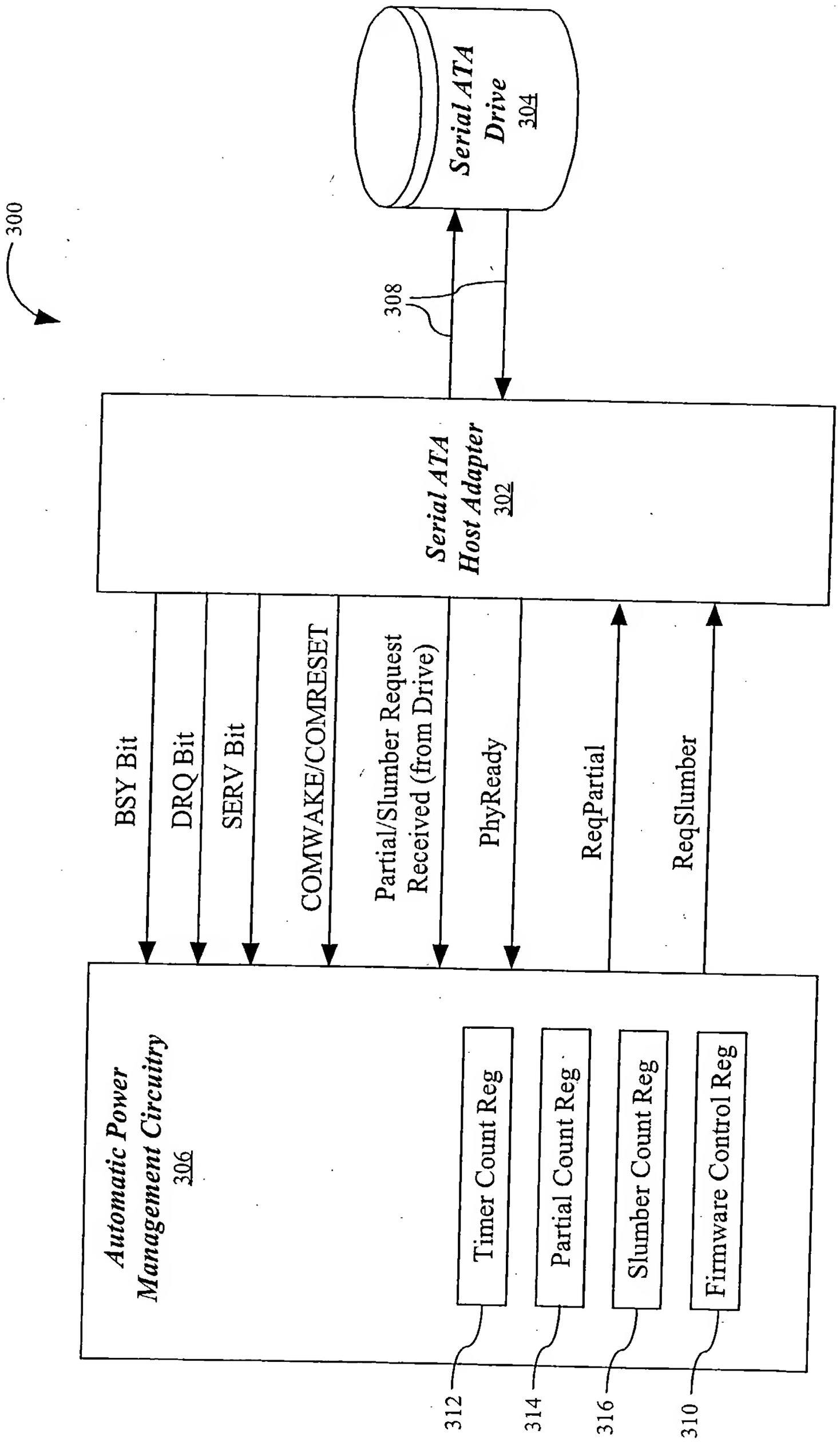
300
Serial ATA Drive 304
308
Serial ATA Host Adapter 302
BSY Bit
DRQ Bit
SERV Bit
COMWAKE/COMRESET
Partial/Slumber Request Received (from Drive)
PhyReady
ReqPartial
ReqSlumber
Automatic Power Management Circuitry 306
Timer Count Reg
Partial Count Reg
Slumber Count Reg
Firmware Control Reg
312
314
316
310

FIG. 3

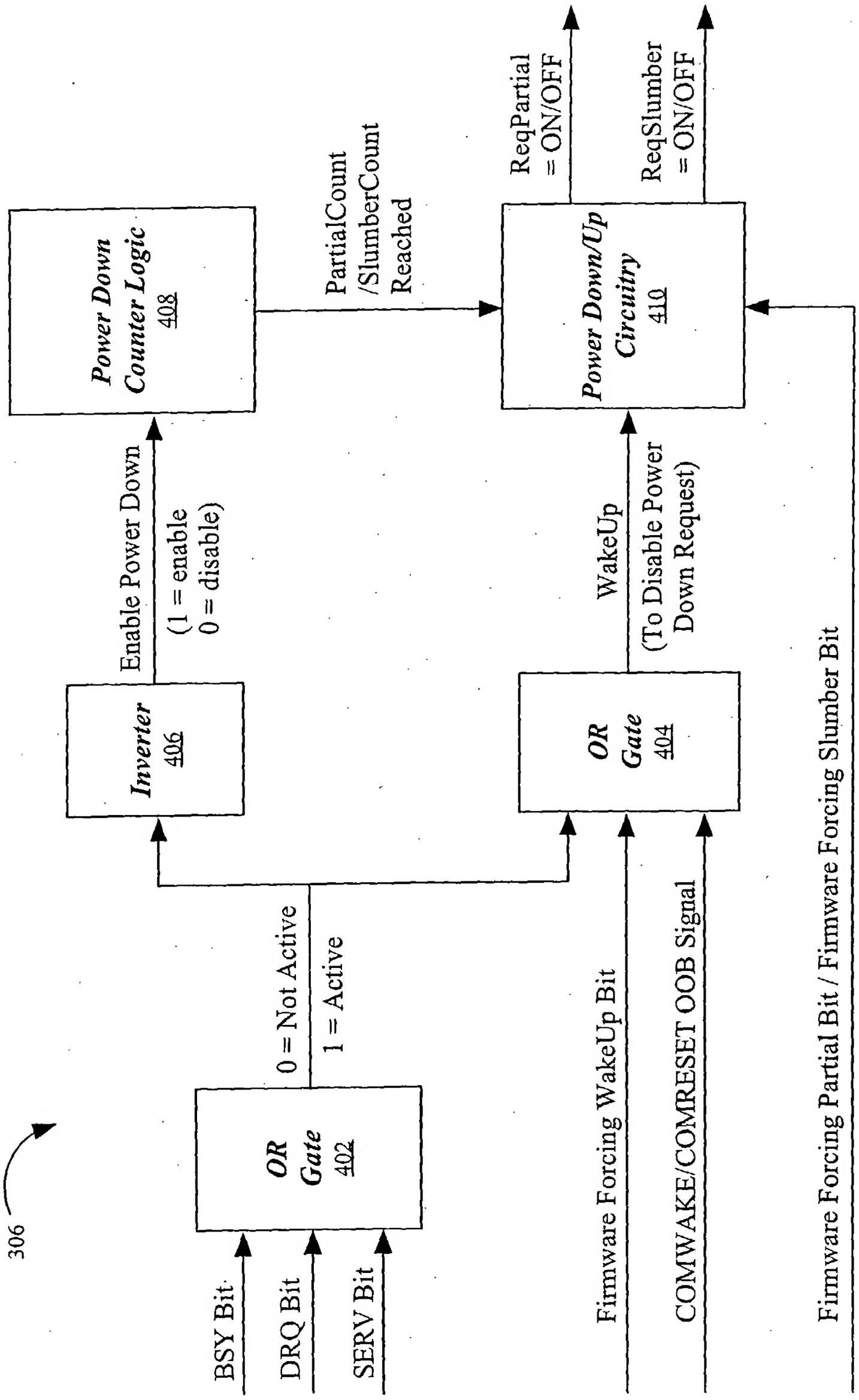
306
BSY Bit
DRQ Bit
SERV Bit
OR Gate 402
0 = Not Active
1 = Active
Inverter 406
Enable Power Down
(1 = enable
0 = disable)
Power Down Counter Logic 408
PartialCount /SlumberCount Reached
Power Down/Up Circuitry 410
ReqPartial = ON/OFF
ReqSlumber = ON/OFF
WakeUp
(To Disable Power Down Request)
OR Gate 404
Firmware Forcing WakeUp Bit
COMWAKE/COMRESET OOB Signal
Firmware Forcing Partial Bit / Firmware Forcing Slumber Bit

FIG. 4